

**Amendments to the Specification**

Please replace the paragraph beginning on pages 5 and 6, starting at line 14 on page 5, with the following replacement paragraph:

In one embodiment, the apparatus comprises ~~a data processing~~ a data processing system including an input for receiving mixed signals from a plurality of sensors, where the sensors are configured to receive mixed signal samples. The mixed signal samples comprise a mixture of signals transmitted from signal sources through an environment and noise. A signal processor is attached with the input for receiving the mixed signals from the sensors. A memory is attached with the signal processor for storing data during operations of the signal processor. The data processing system further comprises means for storing data representing the input from the sensors in a mixed signal matrix  $X$ ; means for storing data representing the noise in a noise matrix  $V$ ; means for storing data representing an estimate of the individual signals from the mixture of signals from the signal sources in a source signal estimate matrix ; means for storing data representing an estimate of the effects of the environment in a estimated mixing matrix where the matrices are related by; means for generating an initial estimate of the estimated mixing matrix; means for determining the number of signal sources and associated lines of correlation of each of the signal sources from the estimated mixing matrix , and for representing the signal sources in the source signal estimate matrix ; means for jointly optimizing the source signal estimate matrix and the estimated mixing matrix in an iterative manner, to generate an optimized source signal estimate matrix and a final estimated mixing matrix; and means for restoring the separated source signals from the optimized source signal estimate matrix , whereby a plurality of

mixed signals from unknown sources traveling through an environment with added noise

may be separated so that the original, separate signals may be reconstructed.